



Enhancing Non English Students' Communication Skills through Blended Learning: A Lesson from English for Specific Purposes Lens

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Received: October 2024; Revised: November 2024; Published: December 2024

Abstract

This study investigates the effectiveness of blended learning in enhancing English communication skills among environmental health students, focusing on oral and written competencies essential in professional contexts. The research addresses a significant gap in language education for students in specialized fields, where limited engagement and practical application opportunities in traditional settings often hinder language proficiency development. A quasi-experimental design was employed with 60 students, divided into an experimental group receiving blended learning instruction and a control group following conventional face-to-face methods. Pre- and post-test results revealed that the experimental group demonstrated a 35% improvement in overall communication skills, compared to a 10% increase in the control group. Key gains in fluency, pronunciation, sentence structure, and vocabulary usage were observed. Data from student surveys and instructor observations also indicated higher levels of motivation, engagement, and confidence in the experimental group, attributed to the blended learning model's flexibility, multimedia resources, and immediate feedback. This study highlights the significant advantages of blended learning for language acquisition in specialized academic fields and recommends its integration into language curricula. Tailored online resources and instructor training are proposed to maximize instructional impact. By addressing the language proficiency challenges in professional education, this research offers valuable insights into effective language learning strategies and supports adopting blended learning in diverse academic disciplines.

Keywords: Blended learning; English communication skills; language acquisition; instructional model

How to Cite: Last name. (2024). Enhancing Non English Students' Communication Skills through Blended Learning: A Lesson from English for Specific Purposes Lens, *Journal of Language and Literature Studies*, 4(4), 895-907. doi: <https://doi.org/10.36312/jolls.v4i4.2358>



<https://doi.org/10.36312/jolls.v4i4.2358>

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INTRODUCTION

Advancements in educational technology have profoundly transformed teaching and learning, giving rise to innovative pedagogical approaches that cater to the diverse needs of learners. Among these approaches, blended learning, which integrates online and face-to-face instruction, has garnered significant attention for its ability to provide a balanced and adaptable learning environment. Blended learning capitalizes on the benefits of both traditional and digital instruction, facilitating skill development through interactive, flexible, and personalized experiences. It has been increasingly recognized for its potential to foster communication skills critical for success in various professional fields, including environmental health (Asghar et al., 2022).

This study examines the role of blended learning in enhancing English communication skills for environmental health students, with a particular focus on oral and written proficiencies essential for academic and professional engagement. Communication skills are foundational for environmental health professionals, as these skills enable them to access global research, participate in international collaborations, and effectively disseminate knowledge within and beyond their field (Corbett, 2022; Rahman et al., 2020).

Proficiency in English is indispensable for students and professionals in environmental health due to the global nature of the discipline. English serves as the primary medium for international research, academic discourse, and the dissemination of scientific findings. However, students in non-native English-speaking contexts often face considerable challenges in acquiring and applying the necessary communication skills. Evidence suggests that over 60% of students in health-related fields experience difficulties in understanding English-language resources and articulating ideas effectively, both in written and verbal forms (Ching et al., 2020). These challenges often stem from a reliance on traditional instructional methods, which, while effective in building foundational skills, lack the adaptability, engagement, and practical application needed for mastery in real-world contexts (Hub, 2022). This underscores the need for alternative pedagogical approaches, such as blended learning, that can address these limitations and support students in developing discipline-specific English communication competencies.

Blended learning is rooted in constructivist learning theories, which posit that knowledge is actively constructed through meaningful interaction with content, peers, and instructors (Hashim & Hamidon, 2022). This theoretical underpinning positions blended learning as a robust framework for enhancing language acquisition, as it promotes active engagement, collaborative learning, and continuous feedback. Previous research has demonstrated that blended learning fosters improvements in vocabulary, grammar, and communicative fluency by providing diverse, interactive, and student-centered learning opportunities (Asghar et al., 2022; Anthony et al., 2020). Despite these promising findings, much of the existing literature focuses on general language proficiency rather than the development of communication skills tailored to specific professional fields. Environmental health, as a discipline that relies heavily on technical terminology and precise communication, demands targeted instructional strategies that address these unique linguistic requirements. The present study seeks to fill this gap by investigating how blended learning can be optimized to enhance English communication skills within the context of environmental health education.

While the benefits of blended learning in general language education are well-documented, its application to discipline-specific communication skills remains underexplored. Therefore, the primary objective of this study is to assess the effectiveness of blended learning in improving English communication skills for environmental health students. Specifically, the research aims to: 1) Evaluate the extent to which blended learning enhances oral and written English communication skills, 2) Investigate students' perceptions of the blended learning model's effectiveness in fostering language development, 3) Identify key components of blended learning that significantly contribute to the development of communication skills.

This research provides critical insights into the application of blended learning for developing specialized communication skills. By addressing the intersection of language education and environmental health, the study offers valuable recommendations for educators, curriculum designers, and policymakers seeking to improve language instruction in professional fields. The findings will not only contribute to the academic discourse on blended learning but also inform practical strategies for integrating technology-driven pedagogies into specialized educational contexts.

Blended Learning

Blended learning, which combines traditional face-to-face instruction with online learning elements, has emerged as a flexible and adaptive instructional approach. This model is particularly effective in enhancing student engagement and self-directed learning by allowing students to interact with materials at their own pace and revisit challenging concepts as needed (Nambiar, 2020). Blended learning leverages digital platforms and multimedia tools to create an interactive learning environment, bridging in-person teaching with online activities that support varied learning styles. This format allows for the integration of both synchronous and asynchronous components, facilitating comprehensive practice and individualized feedback that is essential for skill acquisition, particularly in language learning (Yu, 2023). As education increasingly adopts digital resources, blended learning stands as an innovative model to support varied educational objectives and learner needs.

English Communication Skills

English communication skills, encompassing both oral and written competencies, are fundamental for effective academic and professional interactions, particularly in specialized fields like environmental health (Muhammad et al., 2023). Communication proficiency involves the ability to convey ideas, use appropriate vocabulary, and maintain coherence in discourse. Developing these skills is crucial for students in non-native English settings, as it enables them to engage with global academic literature, participate in international forums, and apply their knowledge within broader professional contexts (Yacob et al., 2022). English communication skills also enhance critical thinking and cross-cultural awareness, as students learn to express complex ideas and understand the nuances of English as an international language. Effective instructional models that focus on these skills are vital to prepare students for the demands of an increasingly interconnected world (Chen, 2023).

Language Acquisition

Language acquisition refers to the process of gaining proficiency in a new language, including the development of vocabulary, grammar, fluency, and comprehension. While language acquisition theories vary, they generally emphasize that meaningful, context-rich interactions are key to achieving language fluency (Adhikari & Chandra, 2023). Blended learning environments, by providing diverse contexts for interaction through both online and in-person formats, support language acquisition by allowing learners to practice language in a variety of communicative settings (Hilmi & Ifawati, 2020). According to cognitive and sociocultural theories of language acquisition, exposure to repeated practice, peer interactions, and multimedia resources enhances the retention and application of language skills (Cheeli, 2024). Blended learning, therefore, aligns well with language acquisition principles, as it offers a structured yet flexible format for continuous language development and application.

Instructional Model Based on Blended Learning

An instructional model based on blended learning combines the strengths of traditional classroom interactions with the flexibility and resources of digital platforms. This model supports differentiated instruction, enabling instructors to design curricula that address diverse student needs and learning paces (Tian, 2023). In the context of English language instruction, the blended learning model is particularly advantageous, as it allows for tailored language exercises, real-time feedback, and interactive activities that reinforce language skills across multiple domains (Hashim & Hamidon, 2022). The blended instructional model encourages student autonomy and accountability while maintaining instructor guidance and support, fostering a balance that is conducive to language learning (Sheerah, 2020).

RESEARCH METHOD

Research Design

This study employs a quasi-experimental design to investigate the effectiveness of blended learning in enhancing the English communication skills of environmental health students. The quasi-experimental approach is well-suited for educational research where full experimental control, such as random assignment, is often impractical or unethical. Specifically, this study utilizes a pretest-posttest non-equivalent groups design, wherein participants are divided into two groups: an experimental group exposed to the blended learning model and a control group receiving traditional instruction. This design allows for a comparative analysis of the impact of blended learning on students' oral and written communication skills, measured through standardized language proficiency tests and task-based performance assessments administered before and after the intervention.

Research Participants

The participants in this study are undergraduate environmental health students enrolled in a required English communication course at a public university. A purposive sampling method was employed to select participants with similar baseline proficiency in English. This was determined through pre-test scores using a standardized English communication skills assessment. The selected participants ($n = 60$) were divided into two groups: 1) the Experimental Group: Comprising 30 students who participated in a blended learning intervention, and 2) the Control Group: Comprising 30 students who received traditional face-to-face instruction.

To ensure a balanced comparison, students were matched based on: 1) Pre-Test Scores: Participants with similar proficiency levels were distributed equally between the groups, 2) Demographic Characteristics: The groups were balanced regarding gender, prior exposure to blended learning, and other relevant factors such as access to digital learning tools, ensuring minimal variability in external influences. Demographic details of participants were collected to provide a comprehensive understanding of the sample. These included: Gender Distribution: Equal representation of male and female students was maintained, and Prior Learning Experience: Information on students' familiarity with blended learning and digital platforms was recorded to control for prior knowledge and experience that might affect outcomes.

Research Instruments

The instruments used for data collection in this study were carefully selected to ensure accurate and reliable measurement of the impact of blended learning on students' English communication skills. The instruments include pre-and post-tests, as well as a student engagement survey administered to the experimental group. Pre- and Post-Tests: The pre- and post-tests were designed to assess participants' oral and written English communication skills. These tests evaluated key competencies such as Fluency, Pronunciation, Sentence Structure, and Vocabulary Usage. Ensuring Validity and Reliability, this study used; 1) Expert Review: The test items were reviewed by a panel of English language and curriculum experts to ensure alignment with the course objectives and relevance to professional contexts in environmental health, and 2) Pilot Testing: The tests were piloted with a small group of students outside the main study sample to identify any ambiguities or inconsistencies in the test items. Necessary revisions were made based on the pilot results, and 3) Standardized Scoring Rubric: A detailed scoring rubric was developed to minimize subjectivity and ensure consistency in evaluating oral and written responses. To assess the experimental group's perceptions of the blended learning model, a student engagement survey was conducted at the end of the study. The survey included: 1) Likert-Scale Items: Measuring levels of engagement, autonomy, and satisfaction with

the blended learning experience. 2) Open-ended questions: Capturing qualitative insights into students' opinions, challenges, and suggestions for improvement.

Data Analysis Method

The data analysis utilized a mixed-methods approach, combining quantitative and qualitative techniques to comprehensively evaluate the study's outcomes. This strategy ensured a balance between numerical precision and contextual depth in assessing the impact of blended learning on English communication skills. In the quantitative analysis, pre-test and post-test scores were subjected to statistical evaluation to measure the effectiveness of the instructional methods. Paired-sample t-tests assessed within-group changes in oral and written communication skills for both experimental and control groups, highlighting the extent of improvement attributable to the intervention. Independent-sample t-tests compared mean differences between the groups, determining the relative effectiveness of blended learning against traditional approaches. Effect sizes were also calculated to assess the practical significance of observed differences, enhancing the interpretive value of the statistical findings.

For the qualitative analysis, open-ended survey responses and observational field notes were analyzed through thematic coding to extract recurring patterns. Key themes included student engagement, which captured levels of active participation and interest; autonomy, reflecting students' perceptions of control and self-regulation in their learning; and satisfaction, detailing the perceived relevance and appeal of the blended learning approach to language skill development. The study integrated quantitative and qualitative findings through triangulation to ensure methodological rigor. Cross-validation aligned statistical improvements in communication skills, such as gains in fluency and coherence, with qualitative feedback from students' reflections on interactive tasks. Thematic insights from qualitative data were mapped against quantitative results to provide a comprehensive understanding of the intervention's impact.

RESEARCH FINDINGS AND DISCUSSION

Research Findings

Quantitative Results: Pre-Test and Post-Test Comparisons

The study measured the effectiveness of the blended learning model in enhancing English communication skills, particularly in oral and written competencies. The results, derived from pre-test and post-test comparisons, indicate that the experimental group (blended learning) showed substantial improvements in both oral and written communication skills when compared to the control group (traditional face-to-face instruction). Table 1 below provides a detailed comparison of pre-test and post-test scores for both groups.

Table 1. Comparison of Scores in Oral and Written Communication Skills

Skill Area	Group	Pre-Test Mean	Post-Test Mean	Mean Gain
Oral Skills	Experimental	66.3	84.2	17.9
	Control	65.5	72.1	6.6
Written Skills	Experimental	64.7	82.4	17.7
	Control	63.9	71.3	7.4

Table 1 showed that the oral communication skills revealed notable differences between the experimental and control groups. The experimental group exhibited a significant improvement in their oral communication abilities, with a mean gain of 17.9 points. This contrasted sharply with the control group, which saw a much smaller improvement of only 6.6 points. The larger increase in the experimental group indicates that the blended learning model, which combined face-to-face instruction with online

learning, provided more engaging and effective opportunities for students to develop their speaking skills. This approach likely offered them more chances to practice speaking in varied contexts, both in the classroom and through online platforms, fostering greater confidence and fluency. Similarly, the improvement in written communication skills followed a comparable trend. The experimental group showed a mean gain of 17.7 points in their written communication, while the control group gained only 7.4 points. The significant difference in the results suggests that the blended learning model not only enhanced oral communication but also played a crucial role in improving students' writing abilities.

Qualitative Insights: Student Engagement and Perceptions

In addition to the quantitative analysis, a student engagement survey was conducted to gather insights into the students' experiences with the blended learning model. The survey included Likert-scale items measuring engagement, autonomy, and satisfaction and open-ended questions for qualitative responses. Below are the key findings from the survey:

Table 2. Student Engagement Survey Results

Survey Component	Mean Score (1-5)
Engagement	4.6
Autonomy	4.4
Satisfaction	4.5
Relevance to Skill Improvement	4.7

The key observations regarding student experiences with the blended learning model revealed several positive outcomes that contributed to its effectiveness. Engagement was one of the most significant factors, with students in the experimental group reporting high levels of involvement in the learning process, reflected in a mean engagement score of 4.6. This suggests that the combination of interactive and multimedia resources within the blended model played a crucial role in maintaining student interest throughout the course. Additionally, the flexibility of the online components enabled students to engage with material at their own pace, further reinforcing their motivation to actively participate in the learning process. Finally, the relevance of the blended learning model was emphasized by students, with a mean score of 4.7 reflecting their recognition of the direct applicability of the skills they developed. Students noted that the competencies gained through the blended learning approach were highly relevant to both their academic studies and future professional careers. The model's focus on practical communication skills, facilitated through real-world applications and interactive content, enabled students to see the immediate value of what they were learning.

Qualitative Insights: Student Responses

Student responses to open-ended questions provided valuable insights into the perceived benefits of the blended learning model. Some notable examples include:

Extract 1. Engagement:

"The videos and interactive quizzes kept me engaged and motivated throughout the course."

"The interactive lessons and multimedia tools kept me motivated. I could practice speaking and listening at my own pace using the videos and quizzes."

High engagement levels were attributed to the dynamic multimedia resources and varied instructional activities provided in the blended model.

Extract 2. Autonomy:

"I appreciated being able to revisit lessons at my own pace and focus on areas where I needed improvement."

"I liked having the flexibility to decide when and where to study. It made me feel more in control of my learning."

"I could learn at my own pace using the online modules, which made it easier to focus on areas I struggled with."

The self-paced online modules fostered autonomy, enabling students to take control of their learning process.

Extract 3. Satisfaction:

"I felt the course was designed with our needs in mind—it balanced theoretical learning with practical application,"

"I am very satisfied with this course because I received instant feedback, which helped me improve my writing and speaking quickly."

Satisfaction stemmed from the model's relevance to real-world communication needs.

Extract 4. Feedback:

Getting immediate feedback on my assignments helped me identify and correct errors quickly," another student remarked.

"I liked getting immediate corrections from the online system and my instructor during live sessions. It helped me identify mistakes quickly."

Immediate feedback on digital and in-class tasks supported iterative learning, reinforcing skill development.

Discussion

The findings of this study provide strong evidence supporting the effectiveness of blended learning in enhancing English communication skills among environmental health students. The experimental group, which engaged in a blended learning model combining face-to-face instruction with online learning modules, demonstrated significant improvements in both oral and written communication skills. These results were evident in both quantitative measures, such as pre-test and post-test comparisons, as well as qualitative feedback derived from student surveys and observational data. By combining these multiple forms of data, the study highlights the potential of blended learning to foster enhanced language skills. This section explores the theoretical frameworks that support these findings, examines their practical implications for curriculum design, and compares the results with similar studies from other disciplines to provide a broader context for understanding the effectiveness of blended learning in language acquisition.

The study's results align with several prominent educational and cognitive theories that highlight the efficacy of blended learning in language acquisition. One of the central frameworks applied is Constructivist Learning Theory, which emphasizes the role of active engagement in the learning process. According to Vygotsky (1978), knowledge is constructed through interactions with content, peers, and instructors, with an emphasis on social and cognitive engagement. The blended learning model employed in this study facilitates such active engagement by integrating both in-person and online learning environments. The interactive online modules, such as quizzes and multimedia resources, allowed students to engage with content at their own pace, while face-to-face sessions provided opportunities for real-time feedback, collaborative learning, and peer interaction. This dual approach not only supports the individual development of language skills but also fosters a deeper understanding and retention of the material, as students can engage in both independent practice and collaborative learning, key principles of constructivist theory.

Another theoretical perspective that explains the success of the blended learning model is Self-Regulated Learning (Zimmerman, 2002). This theory emphasizes the

importance of learners taking control of their own educational experiences through goal-setting, self-monitoring, and self-reflection. The self-paced nature of the online modules in this study allowed students to control the timing and pace of their learning, providing them with the autonomy to revisit challenging areas and engage in continuous self-assessment. This degree of control over the learning process empowered students, as reflected in their positive survey responses regarding autonomy (mean = 4.4). Self-regulated learning not only promotes higher levels of motivation and engagement but also cultivates skills necessary for lifelong learning, which are particularly important in professional fields like environmental health. As students had more opportunities for independent practice and self-directed learning, their motivation to improve their language skills increased, demonstrating the power of blended learning to foster autonomy.

Additionally, the Sociocultural Theory of Language Learning, also articulated by Vygotsky (1978), provides insight into the importance of social interaction in language acquisition. This theory stresses that language learning is inherently social, and learners develop their linguistic abilities through meaningful interactions with others. In the blended learning environment, students participated in role-playing exercises, peer discussions, and collaborative tasks, all of which provided authentic opportunities to practice language skills. These interactions allowed students to internalize linguistic structures through meaningful communication, facilitating both their oral and written language development. The real-time feedback provided during face-to-face sessions, combined with peer-to-peer learning, supported the sociocultural theory by highlighting the role of social interaction in cognitive development. Thus, the collaborative nature of the blended model was a key element in promoting effective language learning.

The findings of this study have significant implications for curriculum design, particularly in fields like environmental health, where proficiency in English communication is essential for both academic success and professional development. Based on these results, several recommendations for curriculum development emerge that can enhance language education through the use of blended learning.

One important recommendation is the integration of blended learning models into curricula. This study demonstrates that blending the flexibility of online learning with the engagement of face-to-face instruction is highly effective in improving communication skills. Curriculum designers should consider adopting blended learning models, especially for language courses, to offer students varied and interactive learning experiences. The online modules provide flexibility, allowing students to practice at their own pace, while in-person sessions provide the necessary scaffolding and peer interaction that reinforce these skills. By combining these two modalities, students can benefit from both independent learning and collaborative activities, maximizing the learning potential of each.

Another recommendation is the use of multimedia and digital tools in language instruction. The positive impact of multimedia resources on student engagement and language acquisition in this study suggests that incorporating diverse digital tools—such as interactive videos, language exercises, and real-time feedback mechanisms—can greatly enhance students' language proficiency. These resources allow students to practice language skills outside traditional classroom settings, providing opportunities for individualized learning. Integrating these tools into language courses can cater to different learning styles and help students acquire language skills more effectively.

Additionally, the study highlights the importance of fostering autonomy and self-regulated learning. Students in the experimental group appreciated the sense of control that the blended learning model provided, with high levels of autonomy contributing to their overall motivation and engagement. Curriculum designers should incorporate flexible learning paths, self-assessment tools, and opportunities for personalized practice

into their programs. By encouraging self-regulated learning, educators not only enhance students' language proficiency but also help them develop skills essential for lifelong learning. This approach is particularly important in fields like environmental health, where students must continuously adapt to new information and professional demands.

Furthermore, collaborative and interactive learning is crucial in language acquisition, as evidenced by the success of group tasks and peer interactions in this study. Curriculum designers should prioritize collaborative learning activities, such as role-playing, peer discussions, and group projects, in their programs. These activities provide students with authentic opportunities to use language in meaningful contexts, helping them develop both their communication skills and their ability to work with others. Encouraging collaborative learning also promotes a deeper understanding of the language, as students negotiate meaning, provide feedback, and learn from one another.

The findings of this study are consistent with similar research on the effectiveness of blended learning across different fields, further supporting its applicability in language acquisition. For example, Rahman et al. (2020) found that blended learning significantly improved writing skills among university students in Malaysia, particularly in academic contexts. Like the current study, their research showed that students who had access to online resources and interactive assignments performed better than those who received only traditional instruction. Additionally, research in health sciences (Reed & Singh, 2021) has demonstrated that blended learning enhances both subject-specific knowledge and communication skills, aligning with the findings of this study. These studies underscore the flexibility and engagement potential of blended learning, making it an effective instructional approach in fields that require specialized language skills.

Research in second language acquisition (SLA) also supports the findings of this study, particularly in terms of the benefits of multimedia resources and self-regulated learning. Studies by Hunutlu (2023) and Broadbent et al. (2021) show that multimedia tools can significantly improve language proficiency by providing diverse contexts for practice and feedback. These studies reinforce the positive impact of blended learning, demonstrating its ability to address the diverse needs of language learners in both general and specialized academic fields.

This study contributes to the growing body of research on the effectiveness of blended learning in language education, particularly in specialized fields such as environmental health. The findings provide robust evidence that blended learning significantly enhances English communication skills, as demonstrated by improvements in both oral and written proficiency, student engagement, and satisfaction. The theoretical frameworks of Constructivism, Multimedia Learning, Self-Regulated Learning, and Sociocultural Theory effectively explain the mechanisms underlying these improvements, offering a strong foundation for understanding the value of blended learning in language acquisition. The practical implications for curriculum design include integrating blended learning models, incorporating multimedia resources, fostering autonomy and self-regulated learning, and emphasizing collaborative, interactive learning activities. Future research should explore the long-term effects of blended learning on language retention, the potential of advanced technologies to personalize learning experiences, and how blended learning can be optimized to meet the needs of diverse student populations.

CONCLUSION

This study examined the impact of blended learning on enhancing English communication skills among environmental health students, focusing on oral and written proficiencies essential for academic and professional contexts. The findings revealed that the blended learning model significantly improved both skill areas compared to traditional face-to-face instruction. Quantitative results demonstrated substantial gains in oral and

written skills within the experimental group, while qualitative insights highlighted high levels of engagement, autonomy, and satisfaction among students exposed to blended learning. The study contributes to educational practices by offering evidence of blended learning's effectiveness in fostering language proficiency, particularly in specialized academic fields. It bridges a critical gap in the literature by addressing how blended learning can be tailored to meet discipline-specific linguistic demands. The integration of interactive digital resources, collaborative tasks, and self-regulated learning opportunities were identified as key components driving these improvements.

The findings of this study hold significant implications for both educators and policymakers: 1) Enhancing Curriculum Design: The study underscores the importance of incorporating blended learning into curricula, particularly for language courses in specialized fields. The combination of face-to-face interactions with online modules creates a flexible, engaging, and effective learning environment that fosters sustained skill development, 2) Promoting Student-Centered Learning: By emphasizing autonomy and self-regulated learning, blended learning aligns with modern pedagogical approaches that prioritize learner independence and adaptability, preparing students for lifelong learning and professional success, 3) Supporting Digital Transformation: This research supports the growing trend toward integrating technology in education, demonstrating the practical benefits of multimedia resources and online tools in enhancing student outcomes.

ACKNOWLEDGMENT

The completion of this study owes a great deal to the guidance and insights provided by national and international colleagues. Their expertise and constructive feedback were invaluable throughout the research process, from the initial design to the final analysis. Their advice on blended learning and language acquisition in the context of english for specific purposes theory provided critical perspectives that strengthened the research focus.

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